

# **Regional Wastewater Services Plan**

## **Semi-annual Report**

**June 2001**



**KING COUNTY**

**Department of Natural Resources  
Wastewater Treatment Division**



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Visit the Regional Wastewater Services Plant Web site at  
<http://dnr.metrokc.gov/wtd/rwsp/rwsp.htm>

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# **Introduction**

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This report describes progress made in implementing the Regional Wastewater Services Plan for the period January through June 2001. The report is organized according to the seven major elements of the RWSP, including treatment, conveyance, infiltration and inflow, combined sewer overflows, biosolids, water reuse, and financing. The activities under each element are summarized along with a schedule for the remainder of the year. The report also provides the year-to-date budget and staffing status for RWSP capital projects.

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## **Background**

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In December 1999, the King County Council adopted Ordinance 13680, which comprehensively updated King County's Comprehensive Water Pollution Abatement plan. This update, termed the Regional Wastewater Services Plan, is a 30-year capital improvement program designed to provide wastewater capacity for this region's rapidly growing population and protect its aquatic resources.

Ordinance 13680 requires the King County Executive to report semiannually to the King County Council and King County Regional Water Quality Committee about progress in siting and constructing new wastewater facilities. This report, in conjunction with a briefing to the Council and RWQC, partially satisfies the requirement; the Executive will also provide an annual report in December 2001 to satisfy the full requirement. This report also meets the requirements of Ordinance 14018 adopting King County's 2001 budget.



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# Treatment Improvements

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The RWSP provides direction for improvements at both of its existing regional wastewater treatment plants. The plan also identifies the need for a new treatment plant in the north service area to provide capacity for the rapidly growing population in the north service area. The specific treatment improvements include:

- constructing a new 36 million gallon per day (mgd) secondary treatment plant by 2010
- upgrading facilities at the West Treatment Plant to treat the extra flow from combined sewer overflow control projects by 2018
- increasing the capacity of the South Treatment Plant from 115 to 135 mgd by 2029

To date, the County has focused its efforts on finding a site for the new treatment plant and its system conveyance and marine outfall—collectively termed the Brightwater Facilities. The siting activities in the first phase of this siting process are summarized below. For a detailed description of the Phase I process, see the document titled *Siting the Brightwater Treatment Facilities – Site Selection and Screening Activities*. This document can be accessed on the Brightwater Web site at <http://dnr.metrokc.gov/wtd/brightwater/library.htm>

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## Siting the Brightwater Facilities

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Beginning in the summer of 2000, King County formed an interdisciplinary team to identify a final location for the Brightwater Treatment Plant using a three-phase siting process. The goal of Phase I was to identify a group of 10 to 15 potential candidate sites for the plant. To accomplish this goal, the team began two parallel efforts. One effort was to identify land areas that might be suitable for a treatment plant, the other was to develop a set of policy site screening criteria that would be used to evaluate potential treatment plant sites.

## **Finding potential land areas**

The team identified a pool of 95 suitable land areas from a variety of sources, including Geographic Information System analysis, a commercial/industrial land search, and a community nomination process. These land areas were validated by applying a broad set of engineering and environmental criteria to identify serious constraints that would limit the construction or operation of a wastewater facility; for example, steep slopes, flood zones, presence of parks, or Superfund sites. This initial screening revealed 38 “unconstrained” sites that could be brought forward for further review.

## **Developing the Site Screening Criteria**

During this initial screening process, the team was developing site screening criteria to further evaluate the unconstrained sites. To guide this process, the team first developed a set of project goals. Then, based on public comments and refinements by technical, policy, and advisory committees, a set of draft screening criteria were developed. The King County Executive forwarded the criteria to Council for review and adoption in September 2000. The Council amended the criteria and requested a refined set of “site selection criteria” for use in Phase II of the siting process. The amended site screening criteria were adopted in February 2001 as Ordinance 14043. In addition, the Council amended the ordinance to include a second and third review. The second review would be to approve the 10-15 candidate sites and the site selection criteria for the final candidate sites. The third review would be to approve the 2-5 final candidate sites for evaluation in the SEPA environmental review process.

## **Applying the Site Screening Criteria**

To help evaluate how well a site meets the adopted screening criteria, the team developed a set of detailed evaluation questions that assess measurable site characteristics. This information came from aerial photos, land use and topographic maps, public databases, and windshield surveys. The team also used their professional judgement to give certain “key factors” additional emphasis in evaluating a site. Examples of key factors include the total length of conveyance pipelines and the number of pump stations needed at a particular site.

After applying the detailed evaluation questions and key factors to the 38 unconstrained sites, the team recommended seven candidate sites to the King and Snohomish County Executives for submittal to the King County Council for continued evaluation in Phase II of the siting process. The sites are summarized in Table 1.



**Table 1**  
**Proposed Candidate Sites**

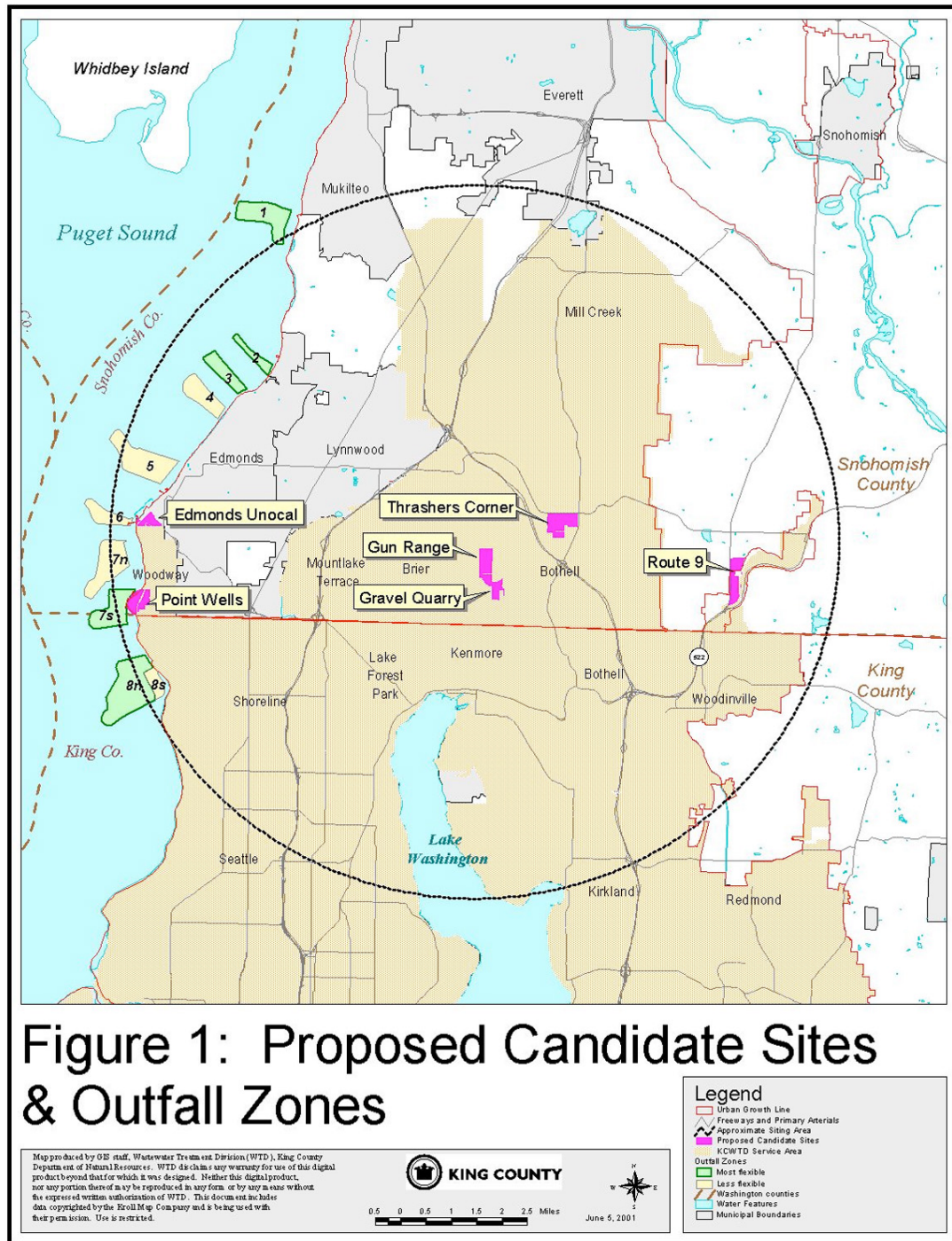
<b>Site Name</b>	<b>Site No.*</b>	<b>Total Area (acres)</b>	<b>Estimated Useable Area (acres)</b>	<b>Jurisdiction</b>	<b>Current Land Use</b>
Edmonds Unocal	IND1/71	53	43	City of Edmonds, Snohomish Co.	Unocal operations; Inactive Tank Farm
Point Wells	30/CN5	98	29	Unincorporated Snohomish Co.	Chevron Asphalt Plant
Gun Range	33/CN1	80	80	Unincorporated Snohomish Co.	Kenmore Gun Range
Gravel Quarry	17	69	68	City of Bothell & Unincorporated Snohomish Co.	Gravel Quarry and Undeveloped Land
Thrashers Corner	19/25	144	63	City of Bothell, Snohomish Co.	Low Density Residential & Open Space
Route 9	IND9/64	108	104	Unincorporated Snohomish Co.	Businesses & Light Industrial
Woodinville	15	44	44	City of Woodinville, King County	Undeveloped – Residential Proposed

\* Site number designations were developed as part of the lands area inventory. "IND" indicates its current use as an industrial site. "CN" indicates that the site was submitted as part of the community nominations process.

#### **Council approves candidate sites and site selection criteria**

On May 14, the King County Council passed Ordinance 14017 approving six candidate sites and the site selection criteria. Some refinements were made to the criteria to ensure that sites are evaluated for potential opportunities to recycle biosolids, methane gas, and reclaimed water. A new criterion was also added which stated "King County shall select north treatment plant sites that do not displace existing facilities that are used for law enforcement and public safety training and, as a practical matter, are difficult to site elsewhere." The new criterion will be applied to the six remaining candidate sites in Phase II of the siting process (Figure 1).

Soon after announcing the seven candidate sites, King County learned that the State of Washington was preparing covenants for the Woodinville site that will restrict the land use on the site to affordable housing. The covenants are expected in July 2001. Because state authority supercedes the county's authority to condemn the land, the King County Council removed the Woodinville site from consideration under the Brightwater process during its May 14, 2001 meeting.



## **Public involvement activities**

The Brightwater team continued to implement a thorough public involvement process during the first half of 2001. Their primary effort during this time was to organize and conduct a series of four public workshops to discuss the seven candidate sites and receive comments and suggestions from interested residents. The three-hour workshops were held in the communities where the candidate sites are located. Participants from all four workshops expressed similar concerns about the new plant such as odor, traffic, property values, and construction impacts. Site specific concerns were expressed as well.

The Brightwater team conducted many other public involvement activities during this reporting period.

- met with land owners of the candidate sites
- met with the Siting Advisory Committee
- presented information and answered questions for several independent organizations
- released a third newsletter
- briefed members of the media representing print, public radio and television
- updated the Web site with detailed information about the seven selected sites

## **Siting the Brightwater Marine Outfall**

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As part of the Brightwater siting process, King County is working on a project to identify a suitable site for a new marine outfall for the Brightwater Treatment Plant. Phase I of this effort, termed the Marine Outfall Siting Study (MOSS), focused on providing basic scientific information on Puget Sound to support the siting of the outfall and its subsequent permitting and design. The MOSS team evaluated seabed geology, currents, marine life, and chemical and bacteria conditions in Puget Sound. Also, in a process similar to the Brightwater siting process, the team: (1) identified constraints that would seriously limit the siting of an outfall, (2) developed site screening criteria, and (3) identified a set of detailed evaluation questions to systematically apply the criteria.

After evaluating the environmental information and applying the criteria, the team identified eight relatively unconstrained outfall zones. The zones, shown on Figure 1, are classified as “flexible” and “less flexible.” Flexible zones provide the greatest opportunity for constructing an outfall with minimal impact. Less flexible zones are still suitable but have one or more features that could affect outfall design, construction, or operation.

## Schedule for 2001

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After the Council adoption of six candidate sites and the site selection criteria, the Brightwater team will have 120 days to assemble between 2-5 system packages, including proposed plant layout scenarios with conveyance and outfall alignments. The schedule for the remainder of the year is shown in Table 2.

**Table 2**  
**Schedule for Brightwater**

Summer 2001	King County will develop systems (including conveyance and outfall) for each candidate site. These systems will be analyzed using the adopted site selection criteria.
Fall 2001	The King County and Snohomish County Executives will announce two to five proposed final candidate systems.
End of 2001	Based on the adopted criteria, the King County Council will then select and approve two to five final candidate systems.

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# Conveyance Improvements

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Planning and design work continues on a number of conveyance projects outlined in the Regional Wastewater Services Plan. This section describes the planning activities carried out this year as part of the Conveyance System Improvement Program, followed by a summary of the projects in predesign and design. Information on schedule is described below for each planning area and project.

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## Projects in planning

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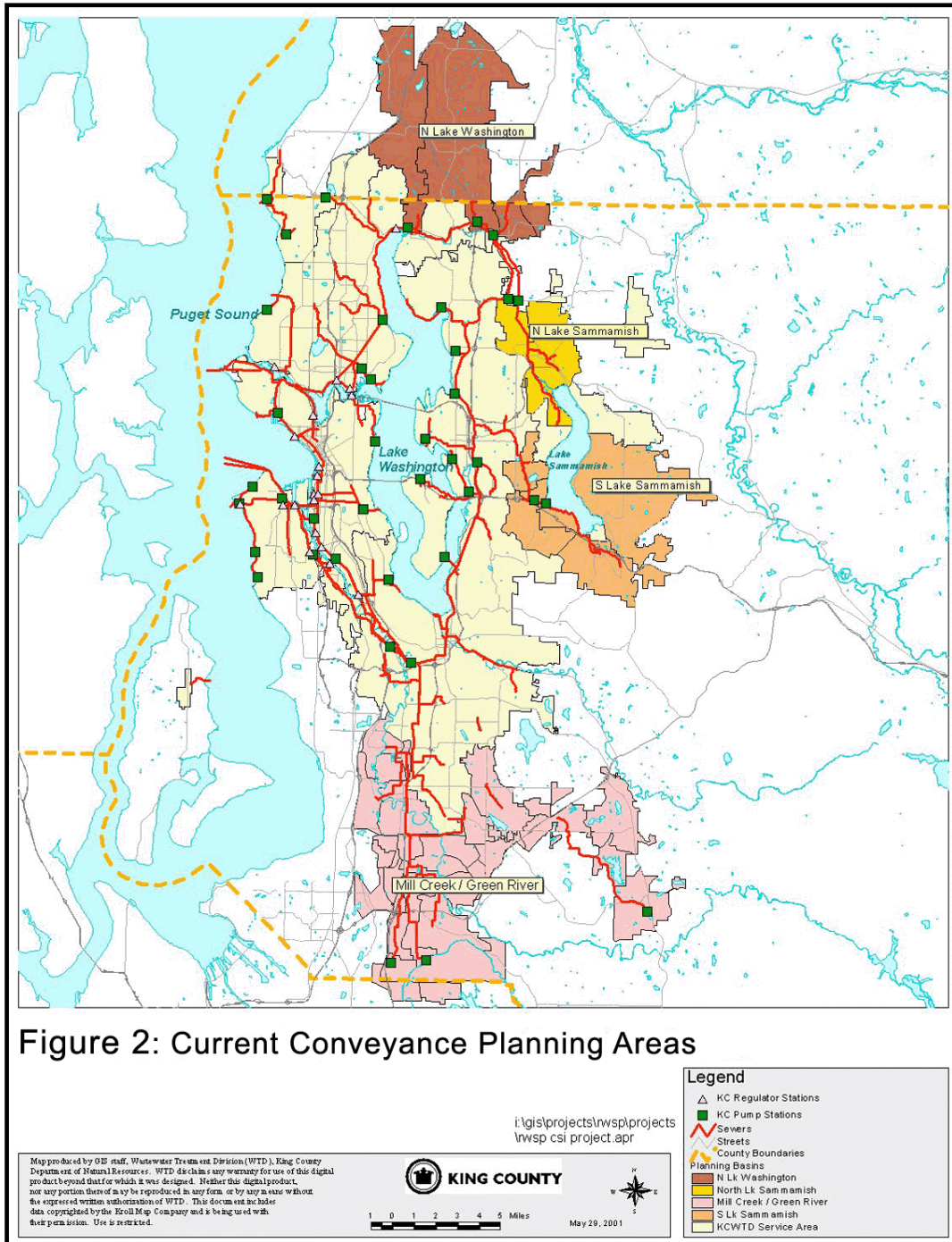
Wastewater basin planning is underway in several of the County's regional basins as part of the Conveyance System Improvement (CSI) Program. The CSI program focuses on upgrading and improving the level of service of the regional conveyance system for the 34 local sewer agencies in King County. The CSI program integrates the RWSP and other programs to provide consistency in conveyance planning system wide and to take advantage of opportunities to address common issues, leverage resources, and minimize customer disruption.

Beginning in 1999, the CSI program identified and prioritized ten planning areas in the wastewater service area. Starting in the highest priority areas, teams of county staff and consultants conduct a comprehensive planning process that evaluates the area's conveyance needs, identifies a range of flow management alternatives, and specifies a working alternative to address the needs. Planning is underway this year in four planning areas (Figure 2): south Green River, south Lake Sammamish, north Lake Sammamish, and north Lake Washington. A fifth group of projects known as the north-end safeguards is also described. These projects were authorized by proviso in the 2000 budget ordinance to further safeguard the north end against sewer backups and overflows such as those that occurred during the winter storms of 1996 - '97.

### South Green River Planning Area

Coordination continues between King County and local sewer agencies in south King County to identify alternatives for needed conveyance improvements in both the regional and local conveyance systems. The South Green River Planning Area includes the entire King County wastewater service area south of the Kent-Cross Valley. This area is divided into three planning zones – the City of Kent, the City of Auburn (including the City of Pacific), and the southern part of the Soos Creek Water and Sewer District (which includes Black Diamond). A model that compared projected flow with existing capacity to the year 2050 revealed that the capacity of substantial sections of the conveyance system throughout this area would be inadequate before 2010.





For the **Kent and Auburn planning zones**, the current working alternative is to build a separate pipeline near the West Valley Highway. This new pipeline – the Southwest Interceptor– would divert flow from south Auburn around the Auburn Interceptor and relieve the capacity problems in the existing line. A number of minor connection/diversion projects are planned to bring wastewater flow to the Southwest Interceptor.

For the **Soos Creek planning zone**, the CSI team developed alternatives that would maximize the use of gravity sewers, provide regional and local benefits such as eliminating pump stations, and maintain flexibility to respond to future needs. These new alternatives involve routing flows by gravity along State Route 18 toward Auburn. New regional facilities in this area would provide the flexibility to accommodate future growth in the south and maximize long-term facility use. Planning for these alternatives will be completed by mid- to late summer of 2001, and requests for bids for design and construction of the refined alternatives should go out 6 to 12 months afterward.

### **South Lake Sammamish Planning Area**

Planning is nearing completion in the South Sammamish Basin located in central King County around the southern half of Lake Sammamish. Wastewater facilities in the basin collect flows from the Sammamish Plateau Water and Sewer District (Sammamish Plateau WSD) on the east side of Lake Sammamish, the City of Issaquah at the south end of the lake, and parts of the City of Bellevue to the west of Lake Sammamish. The primary problem in this area is the more than 20,000 feet of large-diameter pipe that will reach capacity within 20 years, in some cases causing storm-related overflows as well as O&M issues related to two aging pump stations. This is also a high growth area. The planning team is developing alternatives for conveyance upgrades, diversions, and projects to attenuate peak flows, such as storage and I/I control. We expect to develop working alternatives later this summer.

### **North Lake Sammamish Planning Area**

Planning is beginning in the North Lake Sammamish Planning Area, which includes Redmond and the north end of Lake Sammamish. While there are no significant problems in this high growth basin, flow management planning was accelerated to coordinate with the Brightwater Treatment Plant siting process because wastewater from this area will be sent to the new plant. We expect to complete planning later this year.

## **North Lake Washington Planning Area**

The North Lake Washington Service Area includes the areas north and east of the Kenmore Interceptor in King and southern Snohomish Counties. Problems in this basin include overflows from heavy rains and mechanical failures such as those resulting from power loss. This is also an area of high population growth. Project-specific planning is underway for the North Lake Interceptor, as described under “North-end Safeguards” below. We have nearly completed the design of the North Creek Storage Facility and will issue requests for bids for construction in June. We have also identified a solution to increase the reliability of the Sheridan Beach collection system and reduce the probability of future flooding events. Part one of this project—a basin collection line redirecting flow from smaller basins—has been completed; the balance of the project will be completed by fall. We expect to complete planning in the fourth quarter of this year.

## **North-end Safeguards**

**Seismic Vulnerability Study.** In 1999, The King County Council directed and authorized a Seismic Vulnerability Study to evaluate all the County’s major wastewater conveyance pipelines that are under water. A final consultant task list was developed to assess the vulnerability of underwater wastewater pipelines to earthquake damage and to recommend short- and long-term protective action if warranted. The study, which began in May 2000, assesses pipe sections under Lake Washington, Lake Sammamish, the Ship Canal, sloughs, rivers, and creeks. The Kenmore Interceptor, also known as the Lake Line, received the first priority for this study with the remainder of the system analyzed by 2002. The first report, assessing the seismic vulnerability of the Kenmore Interceptor, is complete and identifies a range of working alternatives based on various costs and risks to public health. By December 2001, the reports will be complete for targeted pipe sections and the Wastewater Treatment Division will have a recommendation on what improvements, if any, are necessary for the Kenmore Interceptor.

**North Lake Interceptor.** As part of the larger North Lake Washington basin work, planning continues for the proposed North Lake Interceptor (NLI), a multipurpose conveyance tunnel and 10 million gallon storage facility that will further safeguard north-end residents against possible sewer backups and overflows. In the near term, the NLI would be used to convey flow to the West Treatment Plant. Peak flow above the capacity of the Kenmore Lake Line would be stored in the NLI and pumped into the Logboom Regulator and into the Lake Line after flow subsided. In the long term, the NLI would convey flow northward from the McAleer/Lyon Trunks to the Kenmore Pump Station. The NLI will enable us to send flow to the Brightwater Treatment Plant or to the West Point Treatment Plant during emergencies. Using the NLI, it will be possible to convey most flow away from the Lake Line, except for local flow sent directly to the Lake Line.



## Projects in design

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After a working alternative for a particular conveyance project is identified during the CSI planning process, the project starts predesign and is assigned a project number and project manager. Following predesign, which takes a project through approximately 30 percent of the design process, the project starts final design, where detailed drawings and specifications for construction are developed. Figure 3 shows the location of projects currently in design.

### **Bellevue Pump Station**

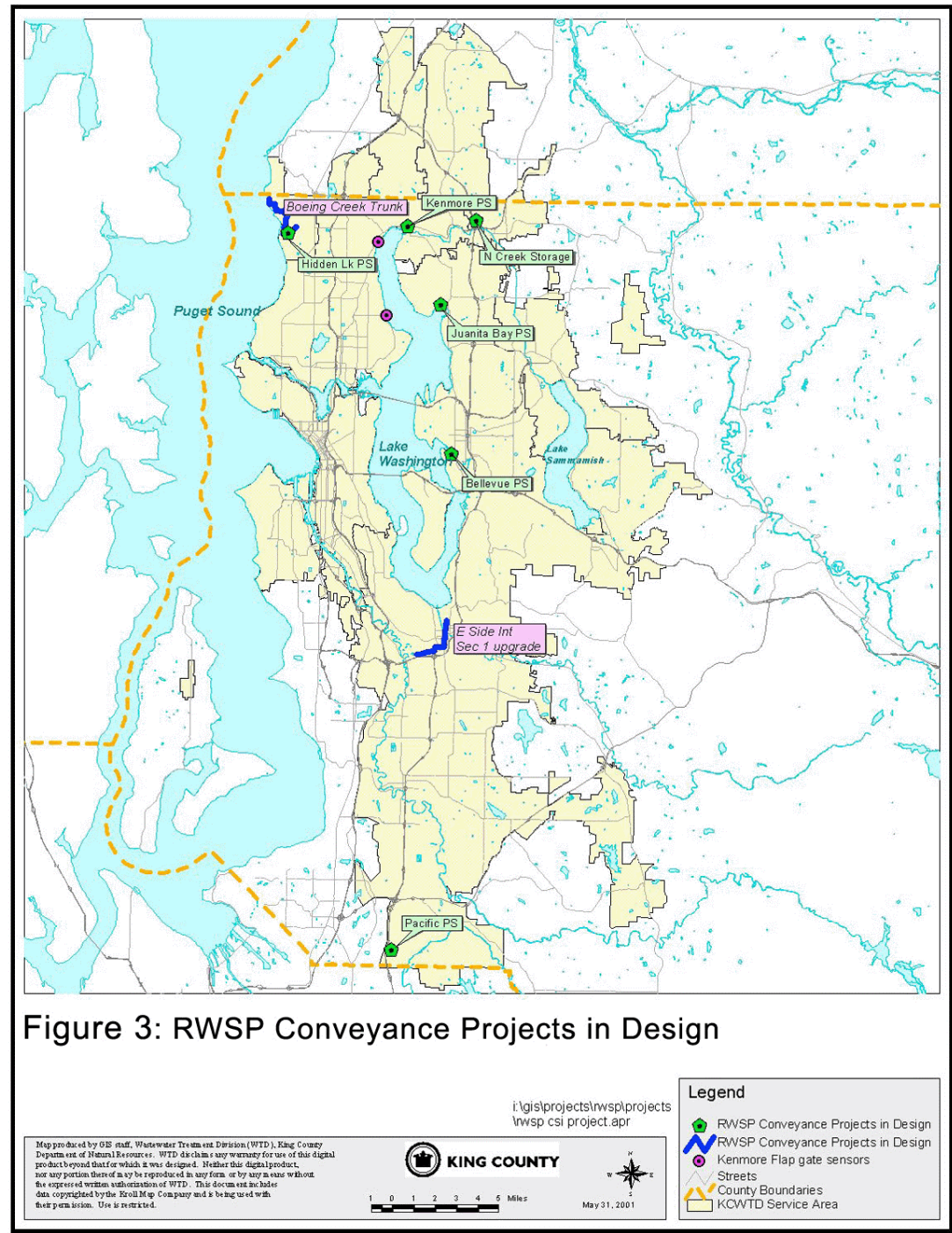
A working alternative was selected to divert excess flows from the Sweyolocken Pump Station where capacity is limited, toward the Eastside Interceptor. An upgrade of the Bellevue Pump Station and a new 5,500 foot-long force main from the pump station to the Eastside Interceptor is also proposed. King County will submit a request for proposals for predesign services in June; we expect to select a design consultant in October.

### **Pacific Pump Station**

Predesign work has begun on Pacific Pump Station in south King County. The existing pump station, located in City of Pacific street right-of-way, has insufficient capacity to convey the existing and future peak service flows. The working alternative recommended for predesign consisted of construction of a new 6-mgd pump station at an alternative site, possibly a new force main, and a permanent generator to provide dedicated backup power supply. The predesign consultant was selected in October 2000 and notice to proceed on predesign was given in April 2001.

### **Juanita Bay Pump Station**

The Juanita Bay Pump Station is an aging facility that is experiencing significant operational difficulties in conveying even current flows. The working alternative recommended for predesign combines replacing the existing pump station with the RWSP capacity upgrade, resulting in the construction of a new 24-mgd peak capacity pump station in the vicinity of the existing pump station. Notice to proceed on a predesign consultant contract for the Juanita Bay Pump Station will be issued in early summer 2001.



### **Hidden Lake Pump Station and Boeing Creek Trunk**

A predesign consultant has been selected and notice to proceed is anticipated in the third quarter of 2001. The selected working alternative to reduce the number of storm related overflows includes three elements: (1) retrofitting or replacing the existing Hidden Lake Pump Station; (2) paralleling or replacing approximately 6,400 lineal feet of the Boeing Creek Trunk where restrictions have reduced pipe capacity; and (3) constructing 0.5 MG of storage upstream of the Hidden Lake Pump Station. The project scope is larger because it combines replacement of the pump station (asset management) and larger volumes of inflow and infiltration (I/I) than was estimated previously.

### **East Side Interceptor**

Final design work is complete to repair earthquake damage and upgrade Section 1 of the East Side Interceptor, construction is anticipated to begin in late 2001. The project will restore the Eastside Interceptor to its original design capacity of 224-mgd by constructing a 72-inch parallel pipeline around the damaged section of pipe. Construction bid and award will take place between July and September and a notice to proceed for construction would probably occur in October 2001.

### **North end safeguards**

**North Creek Storage.** Final design work is complete to construct 6 MG of storage at the site of the North Creek Pump Station, and construction/procurement will begin in the third quarter of 2001. Once constructed the storage facility will provide additional protection against sanitary sewer overflows into Lake Washington upstream of the Kenmore Interceptor. Construction is anticipated to begin in late 2001.

**Kenmore Interceptor Flapgate Sensors.** The Kenmore Interceptor (a.k.a. the Lake Line) is a gravity sewer in Lake Washington that conveys sewage from the Kenmore pump station and Log Boom regulator into the Matthews Beach Pump Station. The Lake Line has a series of flap gates that open automatically if the line becomes surcharged during extreme high flows, protecting the Matthews Pump Station from flooding or shutting down. Until recently, it was difficult to confirm whether the flap gates had opened and discharged sewage into the Lake. To address this issue, King County has committed to a system that can monitor the flap gates, fixing them if they malfunction and alerting residents of potential health hazards if they open. The County has completed the design of the flap gate monitors and the components have been manufactured and delivered for installation. During the next 6 to 12 months, King County will test the sensors and develop a response sequence for use by Wastewater Operations and Maintenance staff.

**Kenmore Pump Station Emergency Generator.** Construction is underway to install an emergency generator and chemical injection system at the Kenmore Pump Station. The emergency generator will provide backup power at the Kenmore Pump Station helping to minimize the risk of sanitary sewer overflows during power outages. The chemical injection system will consist of equipment to inject chemicals into the wastewater collection system to reduce corrosion and odors. We expect to complete construction in the fourth quarter of 2001.

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# Infiltration and Inflow

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The Infiltration and Inflow Program is a five-year, \$31 million comprehensive study that will identify sources of infiltration and inflow into local sewer systems and is based on a cooperative partnership between the County and the 34 Local Agencies serving the region. The primary goal of this program is to define current levels of I/I for each local agency and determine how much I/I is cost effective to remove. The current program is expected to develop in an on-going, long-term effort to control infiltration and inflow in the service area.

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## Flow Monitoring

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A key component of this years work effort was to measure flows in local agency sewer systems and isolate sources of infiltration and inflow. This involved installing 807 flow meters and collecting precipitation information from 72 rain gauges. Unfortunately, the weather this winter did not cooperate and we experienced one of the driest winters on record. During the intensive flow monitoring period that occurred in November, December, and January we experienced exceptionally low rainfalls. Rainfall amounts were 60, 40, and 50 percent of normal, respectively. As a result, we did not experience the storm intensities and durations critical to inflow (groundwater) measurement. The flow monitoring results from these low rainfall months was also impacted because they coincided with an already dry fall period. As a result, soils did not experience normal saturation levels critical to infiltration measurement. In short, we did not obtain the peak wet weather flow data we had sought this last winter.

While conditions were less than ideal to measure and record peak I/I levels, they were excellent for recording baseline dry flow conditions. The County now possesses a comprehensive dry weather flow database from which to assess the quantities of water that leak into the local agency sanitary sewers and ultimately into the King County conveyance and treatment system. Several areas were identified that are considered suspicious, because they are experiencing relatively high levels of I/I flows, even under dry winter weather conditions. These areas will be presented to the Regional Water Quality Committee in a technical memo scheduled for distribution in July 1 as required by the RWSP.

### Program impacts

In February 2001, program staff discussed the detrimental impact of low rainfall on the flow monitoring program with members of the Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC), a coalition representing the 34 local

sewer agencies. Following these discussions, MWPAAC recommended that we repeat the entire flow monitoring effort in the winter of 2001 and defer our selection of pilot projects. With these recommendations in mind, the I/I Program staff proposed the following revisions to the 2001-work program:

- Repeat the flow monitoring next winter to better quantify peak wet weather I/I levels in local agency sewer systems and define their impacts on the King County regional system
- Delay the selection of pilot basins and projects until 2002 when additional and more indicative winter flow monitoring data will be available
- Modify program milestone dates established by the King County Council policy to reflect delays in the program created by the above changes. Programmatic schedule and budgetary impacts will be presented as part of the 2002 budget process

## Schedule for 2001

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Even though we experienced a delay due to dry weather, a significant amount of work will be accomplished, as originally scheduled under the program's 2001 work plan.

**Design Standards:** King County will coordinate the development of regional design standards for new construction and rehabilitation of existing sewer systems. These standards will be based upon existing local agency standards/practices and national industry practices. They will be developed to provide a uniform and effective methodology to locally control I/I levels.

**Public Involvement:** The County will begin a public education program to heighten people's awareness of the causes and impacts of excessive I/I. Focus group's will help us assess the public's understanding of the issue and to develop a regional education program that will effectively raise public awareness.

**Side Sewer Rehabilitation:** Private side sewers are a major source of I/I in the regional wastewater systems, yet they are difficult to control because of their private ownership. We will look at how this issue is being dealt with in other jurisdictions nationally and what measures might be considered in this region

These issues will be covered through 2001 and will be the focus of regional workshops 6 and 7 scheduled for July and December of this year. Draft design standards will be presented in workshop 6 and refined with local agency input in workshop 7. Workshop 6 will begin the regional discussion of private side sewer impacts on I/I control and methodologies that might be employed to control this source. Focus group work will begin in June of this year and lead to an enhanced public education efforts in 2002.

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# Combined Sewer Overflows

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The primary RWSP work effort for the CSO Control program the first half of 2001 was laying groundwork for the future RWSP projects and the 2005 CSO Update. This has included significant coordination with the City of Seattle on their Plan Update, identifying potential County program impacts and opportunities for future project coordination. Other activities involved progress on the Lower Duwamish Waterway Group technical studies for the proposed Superfund listing and developing presentation materials for the July Water Environment Federation Collection Systems & Wet Weather Issues conference to be held in Bellevue.

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## Seattle CSO Plan Update

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In January, King County CSO Control staff participated in the kick-off to the City's Public Involvement process for their Plan update. This was followed in March through April by participation in alternative development workshops for possible future control projects. The City was very responsive to County issues – developing methods to clearly define their alternative's impacts on the County system, and to include alternatives that remove stormwater from their system such as roof leader disconnection. The County has provided significant time in supportive modeling of system impacts, and in encouraging consideration of collaborative approaches with the County when mutual benefit and cost-effectiveness can be shown. Such projects would be formally considered by the County in our 2005 Plan Update process. The City plans to submit a draft of their Plan Update to the Department of Ecology by July.

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## Lower Duwamish Superfund listing

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A listing of the Lower Duwamish Waterway as a Superfund site could impact the CSO control priorities identified in the RWSP. The federal Environmental Protection Agency proposed the Lower Duwamish River for listing as a Superfund site in December 2000. Earlier that year, King County, the City of Seattle, the Port of Seattle, and Boeing formed a partnership and worked closely with regulators to develop an alternative approach to cleaning up contaminated sediment. Unfortunately, the partnership could not reach agreement with federal agencies regarding the statute of limitations for natural resource damage liability. However, EPA approved a consent agreement between the partnership to prepare a remedial investigation and feasibility study (RI/FS) for the Lower Duwamish. This gives King County DNR the opportunity to help shape the Superfund process and to implement the clean up earlier than would occur under the traditional Superfund approach. Work on the RI/FS for the Lower Duwamish started this year and candidate early action cleanup sites will be identified by the end of the year. The impact of this listing on CSO control priorities will be assessed in the 2005 Plan Update.

## Schedule for 2001

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Staff will continue to work closely with the City of Seattle in the finalization of their control plan update. We will develop the annual CSO control report, due to Ecology in October, and continue work on public involvement materials. The County will develop the scope and RFP for consultant services in support of the CSO Control Program Review and 2005 Update process the end of 2001, with advertising early in 2002.

King County DNR will continue its support of the RI/FS process for the Lower Duwamish Consent Order. It is expected that candidate early action clean up sites will be identified by the end of the year. The County also expects to move ahead on the sediment management program in 2000 – 2005 with contaminated sediment cleanups at two CSO locations: Denny Way and Diagonal/Duwamish (as an Elliott Bay/Duwamish Restoration Panel project). The County will continue to work cooperatively with the Port of Seattle, the City of Seattle, and Washington Departments of Natural Resources and Ecology to further cleanup efforts and share implementation costs. The timing of these cooperative opportunities could lead to proposed changes to the sediment management plan schedule.



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# Biosolids

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The December 2000 RWSP Annual Report described two ongoing efforts for the biosolids program. One effort is to continue producing Class B biosolids at all treatment plants. On average, King County produces approximately 135,000 wet tons of biosolids produced each year—all of which is recycled for use in forestry and agricultural applications. The other effort is to evaluate new technologies for biosolids processing, as described below.

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## Evaluating new technologies

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King County DNR has completed initial assessments of four biosolids processing technologies that have the potential to improve biosolids quality, increase the efficiency of existing digesters, reduce truck traffic, and otherwise minimize the potential impacts of solids processing at our wastewater treatment facilities. Four technologies were reviewed.

- **Centridry®:** Testing has shown this process to be very effective in reducing the water content of biosolids. However, current product testing indicates that for best usability the product should also be composted, which significantly increases costs. This project will be completed in the summer of 2001, and we do not anticipate any further testing on this process.
- **Vertad®:** This technology utilizes a 400 foot deep vertical shaft and air injection to create high pressure, aerobic conditions suitable for thermophilic aerobic digestion. A second phase of testing will assess the technology when operated in conjunction with anaerobic digestion to obtain the benefits of both systems.
- **Anoxic gas flotation:** We found this process to be effective at reducing the amount of treated solids, reducing the time needed to digest them, and producing more methane gas. We have completed our reports and will continue to monitor the results of other utilities that are evaluating this technology at a larger scale.
- **Thermophilic/mesophilic digestion:** This technology, currently being considered for use at both the South and West Point Treatment Plants, uses a temperature-phased anaerobic process to increase the efficiency of the digestion process and reduce the required digestion volume. It also has the potential to produce a class A biosolids product with the addition of appropriate high temperature storage capacity.

## **Schedule for 2001**

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King County DNR anticipates making a decision in the 4th quarter of 2001 about implementing new biosolids treatment and dewatering technologies at the South Treatment Plant to replace the older system that has reached the end of its useful life.

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# Water Reuse

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The goal of the County's Water Reuse Program is to use reclaimed water to assist the region in meeting the water resource needs of the environment and people. The five-year Water Reuse Work Plan was transmitted to Council in December 2000 and two primary implementation efforts are underway: the technology demonstration project and the satellite treatment facility.

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## Technology Demonstration Program

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Beginning in June, King County DNR will begin operating a technology demonstration facility at the West Point Treatment Plant. During the following nine months, we will evaluate the effectiveness, operability, and cost of a number of wastewater treatment technologies. The goal of this program is to identify technologies that could:

- reduce the costs and potential impacts of producing "Class A" reclaimed water at small, upstream "satellite" plants for commercial/irrigation uses
- minimize the size of a satellite treatment facility
- cost-effectively remove nutrients, pathogens, organics, and other contaminants from wastewater as may be necessary to make reclaimed water suitable for discharge to freshwater to supplement surface water supplies

The demonstration facility will combine several treatment technologies into small-scale operational process systems to assess their ability to meet process objectives. For example, one of the first technologies we'll evaluate is a "Fuzzy Filter," which is a column containing tightly packed compressible filter media typically used for tertiary treatment. However, we will also evaluate this technology for its ability to provide primary treatment by decompressing the media and reducing flow through the column. Another technology slated for testing is a membrane bioreactor. This technology combines a biological process to provide secondary treatment with membrane filters that screen particles larger than one-tenth of a micron from the aerated bioreactor to produce Class A quality effluent. This technology has the potential to eliminate the need for a primary treatment process, secondary clarification and tertiary filtration.

## **Sammamish River Reclaimed Water Production Facility**

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In 1997, the Water Reuse Policy Development Task Force adopted a needs statement suggesting that “. . . recycling and reusing highly treated wastewater effluent should be investigated as a significant new source of water. . .”As part of the RWSP, King County DNR is striving to meet the intent of this statement in part by evaluating this region’s need for a satellite treatment facility and its ability to support it. We worked with a Stakeholder Task Force to solicit and rank nominations for from public and private parties interested in partnering to implement water reuse demonstration projects. In all, we received 11 nominations representing 13 projects.

Most of the nominations were grouped into five potential demonstration projects based on their proximity to a potential reclaimed water source and on the estimated volume of reclaimed water that might be available.

- Sammamish River
- North Sammamish River
- The Golf Club at Newcastle and Mutual Materials Co.
- Covington
- Tam O’Shanter Golf Course

Each of these projects was ranked based on a set of criteria developed jointly with the Stakeholder Task Force. The criteria evaluated factors such as cost per unit of reclaimed water, regulatory issues, community impacts and support, and integration with other County projects. The Sammamish River project ranked favorably on all the criteria and therefore received the highest overall ranking. Accordingly, this project will move to a feasibility analysis and predesign. For more information about this evaluation process, see “Identification of Potential Satellite Projects for Direct Non-Potable Uses – Summary Report, December 2000.” We will begin predesign on this facility in October.

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## **Water/Wastewater Conservation Program**

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Under the Regional Wastewater Services Plan (RWSP), the King County Council decided to implement a water conservation program to provide a holistic approach in water resource management and to reduce impacts to the wastewater system. \$300,000 was earmarked to fund the program in 2001. We anticipate participating in three partnerships as described below.

### **Partnership with the King County Housing Authority**

The Water/Wastewater Conservation Program will contribute \$265,000 toward water conserving washing machines and low-flow toilets at Housing Authority facilities. In terms of washing machines, a front loader will conserve about 15 gallons of water per load compared to a top loader. The cost of upgrading to a front loading machine is \$450, of which we will pay \$200 and the remaining \$250 will be covered by Seattle Public Utilities and the energy utilities. The Housing Authority will recycle their old machines. The remaining funding will be spent on low-flow toilets. We estimate retrofitting approximately 400 multi-family units with low-flow toilets which use approximately 1.6 gallons/flush compared with 3.5 or more gallons per flush with standard toilets.

### **Partnership with Seattle Public Utilities**

This partnership will provide \$10,000 in rebates to residential customers who purchase low flow toilets. Our portion of the partnership will be to contribute to the recycling costs of the old toilets. In June, rebates on low-flow toilets will be announced. There will be two drop off days for the old toilets to be recycled on July 14 at the Factoria Transfer Station and on August 1 in Seattle.

### **Partnership with the KC Department of Health and Human Services Housing Rehabilitation Program**

This partnership will provide \$10,000 to retrofit approximately 60 qualified homes undergoing rehabilitation with low-flow toilets. This will save 160,000 gallons of water and establish interagency cooperative agreement.

### **Other coordination**

The Water/Wastewater Conservation Program is also participating in the Water Conservation Coalition of Puget Sound in order to bring King County into the regional water conservation community and network with water districts that are interested in partnerships.

## Schedule for 2001

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**Technology Demonstration Program** – A nine-month program to evaluate water reuse/wastewater treatment technologies begins in June 2001.

**Sammamish River Reclaimed Water Production Facility** – We will issue a RFP for predesign this summer. We expect to begin predesign in October and anticipate having an operational satellite plant by the summer of 2004, if not sooner.

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# Financing – Capacity Charge

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At the time the RWSP was adopted in 1999, the Washington State statute governing capacity charges included provisions that constrained the County's ability to pursue a policy of growth pays for growth; namely:

- the capacity charge could not exceed \$10.50 through the year 2001
- the capacity charge could not exceed one-half of the Residential Customer Equivalent (RCE) rate after the year 2001
- the capacity charge could be set based only on facilities identified in the pre-1989 comprehensive wastewater plan

In recognition of these constraints, the King County Council adopted financial policy FP-12 in Ordinance 13680 to pursue changes in the legislation, which was done successfully in June 2000. The Ordinance also required the King County Executive to forward a set of policies outlining a proposed new capacity charge to Council. These policies were transmitted to Council on March 15, 2001, as Proposed Ordinance 2001-0185. The proposed policies reflect points of consensus that were developed during the Regional Water Quality Committee retreat at Robinswood House in Bellevue on October 29, 1998. These policies allocate certain types of costs between existing and new sewer customers and, when applied, will result in a monthly capacity charge of approximately \$20.25 per new residential customer or equivalent for 15 years in 2000 dollars, then increases with inflation each year after.

An independent peer panel reviewed the capacity charge methodology on January 29, 2001. The panel members concluded that the method provides the mechanism to recover growth-related costs from new customers, results in a fair allocation of costs, supports the credit worthiness of King County, and appears to be affordable.

The proposed ordinance is currently under consideration by the Regional Water Quality Committee.





# RWSP Project Information

This section provides additional information for each RWSP capital project as required by Ordinance 14018 in the 2001 Budget Proviso; namely, the year-to-date budget and staffing status.. The projects are organized in the following tabs as shown in Table 2.

**Table 2**  
**RWSP Capital Projects by Element**

<b>Project</b>	<b>Project Number</b>
<b>Tab 1 - Treatment Improvements</b>	
North Treatment Plant	423484
Marine Outfall Study	423457
<b>Tab 2 - Conveyance Improvements</b>	
RWSP Conveyance System Improvements	423373
E. Side Interceptor Section 1 Repair	423420
North Creek Storage	423519
Tukwila Interceptor/Freeway Crossing	423520
Hidden Lake/Boeing Trunk Upgrade Improvement	423365
Juanita Bay PS Modifications	423406
Pacific Pump Station	423518
Bellevue PS	423521
<b>Tab 3 –Combined Sewer Overflow Controls</b>	
CSO Plan Update	423441
CSO Control & Improvement	423515
<b>Tab 4 –Inflow &amp; Infiltration Reduction</b>	
RSWP Local System I/I Control	423297
<b>Tab 5 - Water Reuse</b>	
Water Reuse Technology Demonstration	423483
RWSP Water/Wastewater Conservation Program	423523



# North Treatment Plant (423484)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	5,958,271
2001 actual	858,516
Remaining	5,099,755
% spent	14

## Staffing status through Apr 01

Position	Status	hours billed
WQ PLANNER III	R	1,526.55
WQ PLANNER II	T	1,307.00
PROJECT ASSISTANT	T	1,138.25
WQ PLANNER I	T	723.00
CONST/FACILITIES MGMT V	R	664.00
ENVIR PLANNER III	R	502.00
INFO SYSTEMS ANALYST II	R	385.50
WQ PLANNER II	R	255.00
PROGRAM ANALYST III	R	228.75
ENGINEER IV	R	177.00
INTERN	R	107.00
LEAD/SPECIAL DUTY PAY	R	37.00
ENGINEER V	R	25.50
PROJ CONSTR ENGINEER SUPR	R	16.00
PROJECT CONTROL ENGINEER	R	13.00
CONTRACTS SPEC I	R	1.00
<b>Total hours ytd</b>		<b>7,106.55</b>
<b>Total costs ytd</b>		<b>369,118</b>
<b>Estimated costs through April</b>		<b>394,839</b>
<b>% estimated costs spent</b>		<b>93</b>

R=Full Time Employee T=Temporary Employee

## Contractors as of 5/1/01

Contract # and title	Vendor	expires	paid to date	Current contract amt.
P93012P Site selection	CH2M-Hill	12/31/02	1,264,474	4,617,000
T01129T Legal support	Foster Pepper	01/01/03	67,802	1,150,000
T01130 Legal support	Preston Gates	01/01/03	34,950	1,150,000



# Marine Outfall Study (423457)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	2,463,746
2001 actual	778,303
Remaining	1,685,443
% spent	32

## Staffing status through Apr 01

Position	Status	hours billed
ENVIR SPEC II	R	2,097.50
WQ PLANNER II	R	809.00
CHEMIST III	R	668.00
CHEMIST II	R	656.00
ENGINEER III	R	599.00
WQ PLANNER III	R	411.00
CHEMIST I	R	328.00
ENVIR SPEC III	R	200.00
ENVIR SPEC I	R	185.00
LABORATORY ASSISTANT I	R	183.75
ENVIR SPEC I	T	174.00
LAB CLIENT SERVICES SUPRV	R	157.50
ENVIR SPEC II	T	148.00
MICROBIOLOGIST II	R	128.00
MICROBIOLOGIST I	R	84.00
MICROBIOLOGIST I	T	82.00
LABORATORY CONVENTIONAL S	R	76.00
PROGRAM ANALYST III	R	62.50
LAB ASSISTANT II	R	52.00
INFO SYSTEMS ANALYST II	R	40.00
LABORATORY PROJECT MGR	R	33.50
LEAD/SPECIAL DUTY	R	33.00
BIOLOGIST II	R	26.00
MICROBIOLOGY SUPRV	R	24.00
ENGINEER V	R	20.00
WQ PLANNER II	T	13.50
INFO SYSTEMS ANALYST I	T	8.00
SAMPLE MANAGEMENT SPEC	R	0.50
<b>Total hours ytd</b>		<b>7,299.75</b>
<b>Total costs ytd</b>		<b>253,286</b>
<b>Estimated costs through April</b>		<b>157,627</b>
<b>% estimated costs spent</b>		<b>160</b>

R=Full Time Employee T=Temporary Employee

**Contractors as of 5/1/01**

<b>Contract # and title</b>	<b>Vendor</b>	<b>expires</b>	<b>paid to date</b>	<b>Current contract amt.</b>
P93001P Oceanographic support	Evans Hamilton	12/31/05	662,571	1,363,247
P9300P NTF Marine outfall	Parametrix	12/31/05	552,058	1,534,999

# RWSP Conveyance System Improvements (423373)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	12,097,638
2001 actual	570,844
Remaining	11,526,794
% spent	5

## Staffing status through Apr 01

Position	Status	hours billed
INFO SYSTEMS ANALYST II	R	1,336.00
WQ PLANNER III	R	643.00
CONST/FACILITIES MGMT V	R	631.00
PROJECT CONTROL ENGINEER	R	407.00
INTERN	R	342.00
CONSTRUCTION MGMT III	R	266.00
ENGINEER III	R	262.00
PROJ CONSTR ENGINEER SUPR	R	245.00
ENVIR PLANNER III	R	196.00
ENGINEER V	R	173.00
ENGINEER IV	R	160.00
COMM SPEC III	R	60.00
CONSTRUCTION MGMT I	T	60.00
PROJECT ASSISTANT	T	58.00
ENGINEER VII	R	36.00
TRANSIT PARTS SPEC	R	25.00
ENGINEER II	R	13.00
CONST/FACILITIES MGMT VI	R	8.00
LABORATORY PROJECT MGR	R	8.00
CONSTRUCTION MGMT IV	R	7.00
ENGINEER VI	R	4.00
<b>Total hours ytd</b>		<b>4,940.00</b>
<b>Total costs ytd</b>		<b>245,452</b>
<b>Estimated costs through April</b>		<b>673,629</b>
<b>% estimated costs spent</b>		<b>36</b>

R=Full Time Employee T=Temporary Employee

**Contractors as of 5/1/01**

<b>Contract # and title</b>	<b>Vendor</b>	<b>expires</b>	<b>paid to date</b>	<b>Current contract amt.</b>
C93180C West Div. CIP	Seven Sisters	07/29/01	17,129	400,000
E83004E Con. Sys. Imp.	HDR Eng.	10/30/03	1,622,443	3,364,549
E93018E CIP electrical	B & C	8/31/01	503	350,000



# East Side Interceptor – Section 1 (423420)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	4,779,933
2001 actual	163,052
Remaining	4,616,881
% spent	3

## Staffing status through Apr 01

Position	Status	hours billed
ENGINEER V	R	198.00
COMM SPEC III	R	75.00
CONST/FACILITIES MGMT VI	R	56.00
PROJECT CONTROL ENGINEER	R	43.00
CONSTRUCTION MGMT IV	R	36.00
ENVIR PLANNER III	R	9.00
ENGINEER VI	R	4.50
PROJ CONSTR ENGINEER SUPR	R	4.00
LEAD/SPECIAL DUTY PAY	R	3.00
<b>Total hours ytd</b>		<b>428.50</b>
<b>Total costs ytd</b>		<b>25,225</b>
<b>Estimated costs through April</b>		<b>93,450</b>
<b>% estimated costs spent</b>		<b>27</b>

R=Full Time Employee T=Temporary Employee

## Contractors as of 5/1/01

Contract # and title	Vendor	expires	paid to date	Current contract amt.
E83010E ESI Sec 1 upgrade	KCM	12/31/02	801,101	975,651



# North Creek Storage (423519)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	29,594,984
2001 actual	1,097,073
Remaining	28,497,911
% spent	4

## Staffing status through Apr 01

Position	Status	hours billed
ENGINEER V	R	502.00
CONST/FACILITIES MGMT VI	R	96.00
ENVIR PLANNER III	R	84.00
LEAD/SPECIAL DUTY PAY	R	78.00
PROJECT CONTROL ENGINEER	R	56.00
COMM SPEC III	R	31.00
ENGINEER IV	R	26.00
CONSTRUCTION MGMT III	R	22.00
CONSTRUCTION MGMT IV	R	10.00
MGMT SVCS ANALYST II	R	8.00
PROJ CONSTR ENGINEER SUPR	R	7.00
ENGINEER VI	R	3.00
WQ PLANNER II	R	3.00
CONTRACTS SPEC I	R	1.00
<b>Total hours ytd</b>		<b>927.00</b>
<b>Total costs ytd</b>		<b>54,402</b>
<b>Estimated costs through April</b>		<b>150,571</b>
<b>% estimated costs spent</b>		<b>36</b>

R=Full Time Employee T=Temporary Employee

## Contractors as of 5/1/01

Contract # and title	Vendor	expires	paid to date	Current contract amt.
E06017E North Creek Storage	KCM	12/31/01	1,133,754	2,235,309
P03013P Construction Mgmt	Vanir Const.	12/31/03		1,902,819



# Tukwila Interceptor/Freeway Crossing (423520)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	1,622,197
2001 actual	13,939
Remaining	1,608,258
% spent	1

## Staffing status through Apr 01

Position	Status	hours billed
ENGINEER IV	R	247.00
Total hours ytd		247.00
Total costs ytd		13,939
Estimated costs through April		not estimated
% estimated costs spent		NA

R=Full Time Employee T=Temporary Employee



# Hidden Lake Pump Station and Boeing Creek Trunk (423365)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	1,176,538
2001 actual	33,378
Remaining	1,143,160
% spent	3

## Staffing status through Apr 01

Position	Status	hours billed
ENGINEER V	R	341.00
WQ PLANNER II	R	84.00
CHEMIST III	R	48.00
ENGINEER III	R	37.00
LABORATORY PROJECT MGR	R	9.50
ENVIR PLANNER III	R	8.00
CHEMIST II	R	2.00
CHEMIST I	R	1.00
REAL PROPERTY AGENT III	T	1.00
<b>Total hours ytd</b>		<b>531.50</b>
<b>Total costs ytd</b>		<b>32,237</b>
<b>Estimated costs through April</b>		<b>31,598</b>
<b>% estimated costs spent</b>		<b>102</b>

R=Full Time Employee T=Temporary Employee





# Juanita Bay Pump Station Modifications (423406)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	1,888,070
2001 actual	43,136
Remaining	1,844,933
% spent	2

## Staffing status through Apr 01

Position	Status	hours billed
ENGINEER III	R	562.00
REAL PROPERTY AGENT III	T	22.00
ENVIR PLANNER III	R	20.00
COMM SPEC III	R	9.00
CONSTRUCTION MGMT IV	T	8.00
PROJ CONSTR ENGINEER SUPR	R	8.00
CONSTRUCTION MGMT IV	R	4.00
ENGINEER V	R	3.00
<b>Total hours ytd</b>		<b>636.00</b>
<b>Total costs ytd</b>		<b>36,237</b>
<b>Estimated costs through April</b>		<b>55,587</b>
<b>% estimated costs spent</b>		<b>65</b>

R=Full Time Employee T=Temporary Employee

## Contractors as of 5/1/01

Contract # and title	Vendor	expires	paid to date	Current contract amt.
E83040E Professional Services for corrosion repair	Norton Corrosion Ltd	1/5/2002	1,641	300,000



# Pacific Pump Station (423518)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	213,963
2001 actual	15,789
Remaining	198,174
% spent	8

## Staffing status through Apr 01

Position	Status	hours billed
ENGINEER V	R	232.00
PROJ CONSTR ENGINEER SUPR	R	4.00
INFO SYSTEMS ANALYST II	R	2.00
<b>Total hours ytd</b>		<b>238.00</b>
<b>Total costs ytd</b>		<b>15,789</b>
<b>Estimated costs through April</b>		<b>not estimated</b>
<b>% estimated costs spent</b>		<b>N/A</b>

R=Full Time Employee T=Temporary Employee



# Bellevue Pump Station (423521)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	846,558
2001 actual	7,232
Remaining	839,326
% spent	1

## Staffing status through Apr 01

Position	Status	hours billed
WQ SR. ENGINEER	R	66.00
ENGINEER III	R	49.50
<b>Total hours ytd</b>		<b>115.50</b>
<b>Total costs ytd</b>		<b>7,232</b>
<b>Estimated costs through April</b>		<b>not estimated</b>
<b>% estimated costs spent</b>		<b>N/A</b>

R=Full Time Employee T=Temporary Employee



# CSO Plan Update (423441)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	339,549
2001 actual	86,321
Remaining	253,228
% spent	25

## Staffing status through Apr 01

Position	Status	hours billed
ENGINEER III	R	600.00
WQ PLANNER II	R	352.00
WQ STAFF ENGINEER	R	180.00
ENGINEER V	R	51.50
WQ PLANNER II	T	14.00
WQ PLANNER III	R	12.00
LAB CLIENT SERVICES SUPRV	R	1.00
LEAD/SPECIAL DUTY	R	1.00
<b>Total hours ytd</b>		<b>1,211.50</b>
<b>Total costs ytd</b>		<b>60,040</b>
<b>Estimated costs through April</b>		<b>24,651</b>
<b>% estimated costs spent</b>		<b>240</b>

R=Full Time Employee T=Temporary Employee

## Contractors as of 5/1/01

Contract # and title	Vendor	expires	paid to date	Current contract amt.
E83034 CSO Plan Update	B&C	5/31/01	350,570	\$963,350





# CSO Control & Improvement (423515)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	85,900
2001 actual	21,316
Remaining	64,584
% spent	25

## Budget status through Apr 01

Position	Status	hours billed
WQ SR. ENGINEER	R	220.00
WQ STAFF ENGINEER	R	210.00
CONSTRUCTION MGMT IV	R	2.00
<b>Total hours ytd</b>		<b>432.00</b>
<b>Total costs ytd</b>		<b>21,316</b>
<b>Estimated costs through April</b>		<b>not estimated</b>
<b>% estimated costs spent</b>		<b>NA</b>

R=Full Time Employee T=Temporary Employee



# Local System I/I Control (423297)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	4,789,902
2001 actual	1,960,472
Remaining	2,829,430
% spent	41

## Staffing status through Apr 01

Position	Status	hours billed
ENGINEER III	R	909.00
ENGINEER II	T	647.00
WQ PLANNER SUPRV	R	568.00
PROJECT ASSISTANT	T	553.50
INFO SYSTEMS ANALYST II	R	508.00
WPCD ENERGY COORDINATOR	R	412.00
ENGINEER V	R	216.00
PROJECT CONTROL ENGINEER	R	112.00
ENGINEER III	T	85.00
MGMT SVCS ANALYST II	R	16.00
ENGINEER VI	R	4.50
CONSTRUCTION MGMT III	R	2.00
<b>Total hours ytd</b>		<b>4,033.00</b>
<b>Total costs ytd</b>		<b>184,435</b>
<b>Estimated costs through April</b>		<b>194,815</b>
<b>% estimated costs spent</b>		<b>95</b>

R=Full Time Employee T=Temporary Employee

## Contractors as of 5/1/01

Contract # and title	Vendor	expires	paid to date	Current contract amt.
E90351E Regional I/I	Earth Tech	12/31/04	8,251,297	19,410,131



# Water Reuse Technology Demonstration (423483)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	506,000
2001 actual	22,233
Remaining	483,767
% spent	4

## Staffing status through Apr 01

Position	Status	hours billed
PROJECT PLANNING ADMIN	R	179.00
PROJECT CONTROL ENGINEER	R	113.00
ENGINEER III	T	55.00
ENGINEER II	T	41.00
LAB CLIENT SERVICES SUPRV	R	9.50
ENVIR SPEC II	R	7.00
ENGINEER I	T	4.00
<b>Total hours ytd</b>		<b>408.50</b>
<b>Total costs ytd</b>		<b>22,233</b>
<b>Estimated costs through April</b>		<b>49,060</b>
<b>% estimated costs spent</b>		<b>45</b>

R=Full Time Employee T=Temporary Employee

## Contractors as of 5/1/01

Contract # and title	Vendor	expires	paid to date	Current contract amt.
E83076E water reuse technology demonstration	HDR	08/31/01	358,201	\$515,128
C03093L water reuse	Shinn Mech	12/26/01	0	517,089



# Water/Wastewater Conservation Program (423523)

## Budget status through Apr 01

Annual budget forecast	
2001 forecast	300,000
2001 actual	160
Remaining	299,840
% spent	0

